



October 17, 2008

Mr. Paresh Khatri, Hazardous Materials Specialist  
Alameda County Environmental Health Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

RECEIVED

2:31 pm, Oct 20, 2008

Alameda County  
Environmental Health

RE: Request for Reports and a Groundwater Investigation Workplan for Fuel Leak Case No. RO0002735 and Geotracker Global ID T0600190987, EBMUD South Area Service Center, 589 East Lewelling Boulevard, San Lorenzo, CA 94580

Dear Mr. Khatri:

The East Bay Municipal Utility District (EBMUD) is in receipt of your September 30, 2008 letter regarding soil contamination found at the above referenced site during upgrades of under dispenser containment in May 2004. Your letter requests the submittal, by December 29, 2008, of a workplan to investigate whether local groundwater has been impacted. As explained below, EBMUD is of the opinion that groundwater investigation is not warranted based on site conditions. In addition, you have requested that all available reports related to environmental investigations for this property be submitted by October 30, 2008. EBMUD has already submitted to Alameda County Environmental Health Services (ACEHS) all available reports associated with the 2004 subsurface investigation. There were other unrelated subsurface investigations that took place in the 1980s and 1990s. However, those reports had also been submitted to ACEHS previously.

During the May 2004 upgrades of containment under the two dispensers (one diesel and one gasoline) at EBMUD's South Area Service Center, subsurface soil samples were collected in accordance with ACEHS guidelines and a county representative, Robert Weston, was present to observe the work. On May 5, 2004, EBMUD's contractor, Gettler-Ryan Inc., collected one soil sample at 3.0 feet below ground surface (bgs) and another at 2.0 feet bgs beneath the diesel dispenser and gasoline dispenser, respectively. As described in Gettler-Ryan's *Soil Sampling Report*, dated June 15, 2004, TPHd concentrations ranged from 11 mg/kg underneath the gasoline dispenser to 1,400 mg/kg underneath the diesel dispenser. TPHg was not detected above laboratory method detection limits. VOC analyses did not detect BTEX above laboratory method detection limits either.

Following additional soil excavation from beneath the diesel fuel dispenser on May 11, another soil sample was collected at 5.5 feet bgs. TPHd was detected at 3.5 mg/kg<sup>1</sup>. Again, BTEX was not detected.

It is EBMUD's opinion that preferential pathway study and groundwater investigations are not warranted for the following reasons:

1. The San Francisco Bay Regional Water Quality Control Board (SFRWQCB) has published environmental screening levels (ESLs) for sites with contaminated soil and groundwater<sup>2</sup>.

<sup>1</sup> Sample had unidentifiable interfering peaks eluting between diesel and motor oil. Gettler-Ryan's *Soil Sampling Report* erroneously reported this result as 11 mg/kg in the text. However, Table 1 did correctly show the result as 3.5 mg/kg.

The ESLs are considered to be conservative. Under most circumstances, “the presence of a chemical in soil, soil gas or groundwater at concentrations below the corresponding ESL can be assumed to not pose a significant, long-term (chronic) threat to human health and the environment.” The site and its surroundings are industrial in nature and local shallow groundwater is most likely not suitable for drinking. The corresponding soil ESL for TPHd under these circumstances is 180 mg/kg, significantly higher than the 3.5 mg/kg detected onsite at the bottom of the excavation pit. Even the most conservative soil ESL for a residential setting and where groundwater is a drinking source is 83 mg/kg, more than 20 times the level detected in 2004.

2. The ESLs have been developed to address environmental protection goals presented in SFRWQCB’s *Water Quality Control Plan for the San Francisco Bay Basin*. One of the environmental concerns considered was a contaminant’s leaching potential to the underlying groundwater. The algorithm used to calculate the screening levels is based on a three-meter thick vadose zone characterized by one meter of contaminated soil lying between two one-meter thick layers of clean soil. The lower layer immediately overlies groundwater. All vadose zone soil is assumed to be very permeable sand that freely allows the migration of leachate to groundwater. Annual rainfall is assumed to be 1,100 mm (approximately 43 inches). A total of 720 mm (28 inches) of the total rainfall is assumed to infiltrate the ground surface and reach groundwater. Biodegradation during migration of leachate to groundwater is not considered.

These are all very conservative assumptions when compared to actual site conditions. The distance between the contamination and the underlying groundwater onsite is more than the one meter (~ 3.3’) assumed in the model. Your letter suggests that depth to groundwater in the vicinity may be as shallow as 13.5 feet based on measurements at 376 Lewelling Boulevard. 376 Lewelling Boulevard is approximately ¼ mile away from EBMUD’s service center and, therefore, may not be representative of actual site conditions. In fact, three soil borings completed in June 1988 indicated that the high groundwater level is approximately 28 feet bgs and most of the soil column down to groundwater is characterized as stiff silty clay. This is supported by Gettler-Ryan’s observation during their 2004 excavation, when they noted, below the one to two feet of surface fill, a native hard silt/clay to 5.5 feet bgs, the extent of their excavation. Furthermore, during the removal of two underground storage tanks on August 23, 1990 at this site, no groundwater was encountered when excavation pits were completed down to 13 feet bgs. A foot of native soil was overexcavated from the bottom of those pits on October 12, 1990. Again, no groundwater was noted.

It can, therefore, be reasonably concluded that groundwater at this location is deeper than 13.5 feet bgs, and is separated from the insignificant amount of residual diesel found at 5.5 feet bgs by hard clay soil. Even with the most conservative scenario of groundwater present at 13.5 feet bgs, the resulting 8 feet of separation between the contamination and groundwater is still more than twice as much as the 3.3 feet of separation used in the algorithm to derive the soil screening levels. Furthermore, as stated above and as shown by the 1988 boring logs (attached), the soil beneath the surface fill is dominated by hard silty clay instead of the permeable sand assumed in SFRWQCB’s model. This clay layer should serve as an effective barrier to the downward migration of contaminants. And, as

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<sup>2</sup> *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater – Interim Final*, California Regional Water Quality Control Board, San Francisco Bay Region, May 2008.

groundwater is expected at approximately 28 feet bgs, a preferential pathway study as requested in your letter is not warranted.

Lastly, the average annual precipitation in San Lorenzo is approximately 26.3 inches. Again, the algorithm's assumed 43 inches of rain with 28 inches infiltrated underground is overly conservative. For an industrial area like this, it is not unusual to have a runoff coefficient of at least 0.5 and up to 0.9 due to the prevalence of impervious surfaces. If that is the case, one would expect, at most, not more than 13 inches of rain infiltration locally every year. That would still be less than half of the 28 inches of infiltration used in SFRWQCB's model. Moreover, in-situ bio-attenuation of contaminants such as petroleum compounds is a well-established and accepted remediation alternative. The fact that SFRWQCB's ESLs do not account for that possibility simply attests to the overly conservative nature of these screening levels.

3. Overexcavation was performed under the diesel fuel dispenser in 2004 to remove the most contaminated soil in this area. With the subsequent installation of secondary containment under the dispensers and periodic inspections, including those conducted by ACEHS, there is no longer a source for continuing subsurface contamination. And, as suggested by SFRWQCB's ESLs, any residual contamination in the subsurface is insufficient to pose a significant threat to human health or the environment.
4. The insignificant concentrations of petroleum hydrocarbons detected in the subsurface are biodegradable, and can be expected to decrease further over time.

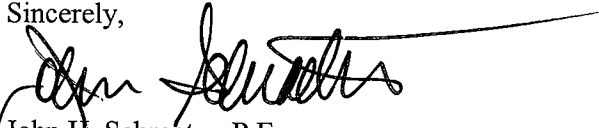
For the reasons stated above, EBMUD believes no further action is necessary for this site and respectfully requests site closure.

#### CERTIFICATION

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

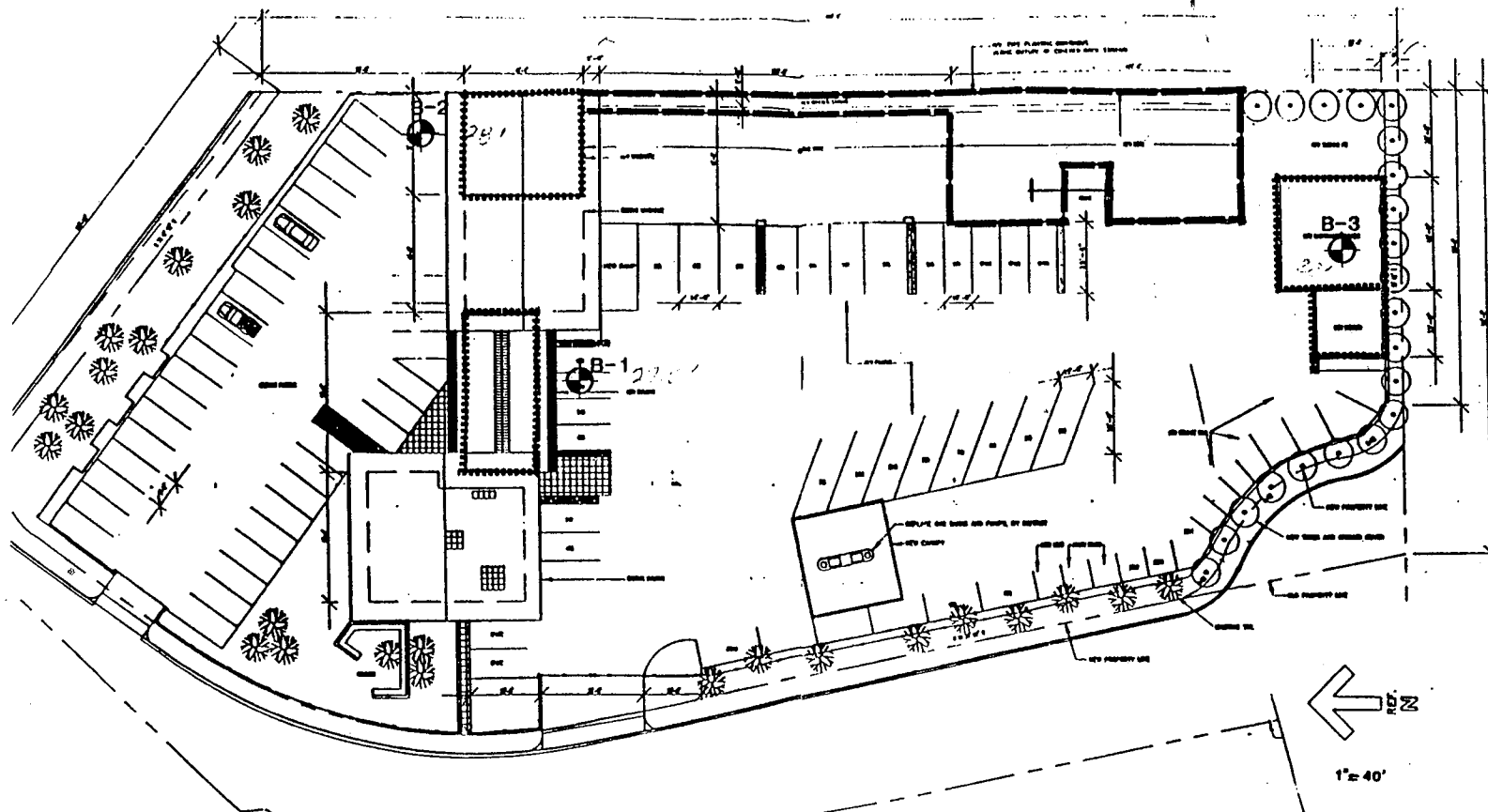
Should you have any questions, please contact Derek Lee, Senior Environmental Health and Safety Specialist, at (510) 287-1086 or me at (510) 287-0345. We are available to meet with you to discuss this issue further in order to bring it to closure, if necessary.

Sincerely,



John H. Schroeter, P.E.  
Manager of Environmental Compliance

Attachment



- : Proposed New Building
- : Proposed New Dock
- ⊙ : Test Boring

REF: Site plan provided by Jong & Jong dated 5-13-88

**Geo/Resource Consultants, Inc.**  
 GEOLOGISTS / ENGINEERS / ENVIRONMENTAL SCIENTISTS  
 851 HARRISON STREET, SAN FRANCISCO, CALIFORNIA 94107

Job No. 1400-00    Appr. *APC*    Date 8-22-88

SITE PLAN

**EAST BAY MUNICIPAL UTILITY DISTRICT  
 SOUTH AREA SERVICE CENTER  
 SAN LORENZO, CALIFORNIA**

FIGURE  
 2

\*: 3" Sprague-Henwood  
Sampler w/140 lb.  
Falling 30"

Laboratory Analyses

Blows/ft.\*  
Moisture  
Content (%)  
Dry density  
(pcf)

Atterberg Limits  
LL = 37 PI = 13  
Unconfined Compression  
Su = 5,120 psf

30 3.2 117.5

35

Atterberg Limits  
LL = 22 PI < 4  
- #200 Sieve

19

14

20

52

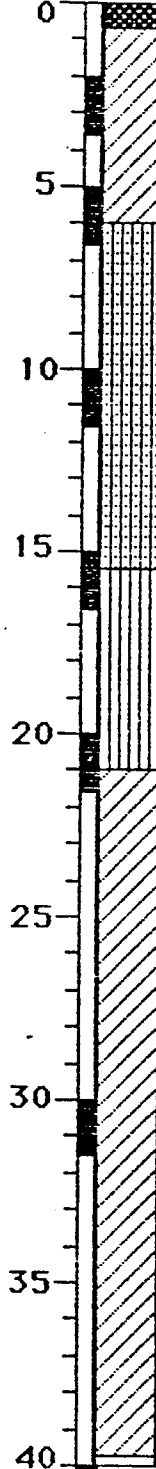
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### LOG OF BORING B-1

Equipment CME-45 w/6" Flight Auger

Elevation 54.7' Date 6-10-88

Depth (ft.)  
Sample pnts.



2" Asphalt Concrete over 6" Aggregate Base  
Dark Brown Silty Clay (CL/ML), moist, very stiff  
Brown Clayey Silty Fine Sand(SM/SC/ML), moist medium dense  
Very Dark Brown Sandy Silty Clay (ML/CL), moist stiff w/ gravels  
Very Dark Brown Silty Clay (CL/CH), wet, stiff  
W.L. @ 27.5' at time of drilling  
Light Brown, Hard  
Bottom of Hole at 41.5'



Geo/Resource Consultants, Inc.  
Geologists, Engineers, Environmental  
Scientists

Job No. 1400-00 Appr: MDC Date 6-21-88

LOG OF BORING B-1  
EAST BAY MUNICIPAL UTILITY DISTRICT  
SOUTH AREA SERVICE CENTER  
SAN LORENZO, CALIFORNIA

FIGURE  
3

\*: 3" Sprague-Henwood  
Sampler w/140 lb.  
Falling 30"

### LOG OF BORING B-2

Equipment CME-45 w/6" Flight Auger

Laboratory Analyses

Elevation 54.0' Date 6-10-88

Laboratory Analyses	Blows/ft.*	Moisture Content (%)	Dry density (pcf)	Depth (ft.)	Sample pnts.	Soil Description
Atterberg Limits LL=41 PI=16 Unconfined Compression Su = 950 psf	19	24.2	91.2	0		2" Asphalt Concrete over 6" Aggregate Base
	15	13.0	100.2	5		Dark Brown Silty Sandy Clay (CL), moist, stiff
	18			10		Brown
Unconfined Compression Su = 970 psf	21	25.7	93.2	15		
	33			20		Very Dark Brown Silty Clay (CL/CH), wet very stiff
LL=53 PI=28	52	24.1	98.7	30		Light Grey, saturated, hard
				35		
				40		

W.L. @ 28'  
at time of drilling



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Scientists

LOG OF BORING B-2  
EAST BAY MUNICIPAL UTILITY DISTRICT  
SOUTH AREA SERVICE CENTER  
SAN LORENZO, CALIFORNIA

FIGURE  
4

Job No. 1400-00 Appr: MDC Date 6-21-88

**LOG OF BORING B-2 (Cont'd)**

\* 3" Sprague-Henwood  
 Sampler w/140 lb.  
 Falling 30"  
 Laboratory Analyses

Blows/ft. \*  
 Moisture  
 Content (%)  
 Dry density  
 (pcf)

Depth (ft.)  
 Sample pts.

Equipment CME-45 w/6" Flight Auger

Elevation \_\_\_\_\_ Date 6-10-88

Blows/ft. *	Moisture Content (%)	Dry density (pcf)	Depth (ft.)	Sample pts.	Description
29			40		Light Brown Silty Clay (CL/CH), saturated very stiff
			45		
54			50		hard
			51.5		Bottom of Hole @ 51.5'
			55		
			60		
			65		
			70		
			75		
			80		



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 Scientists

Job No. 1400-00 Appr: ADC Date 6-21-88

**LOG OF BORING B-2**  
**EAST BAY MUNICIPAL UTILITY DISTRICT**  
**SOUTH AREA SERVICE CENTER**  
**SAN LORENZO, CALIFORNIA**

FIGURE

4a

n/d

\*: 3" Sprague-Henwood  
Sampler w/140 lb.  
Falling 30"

Laboratory Analyses

Atterberg Limits  
LL=29 PI=9  
Unconfined Compression  
Su = 1,000 psf

Blows/ft.\*  
Moisture  
Content (%)  
Dry density  
(pcf)

11 16.3 103.0

17

16 14.8 99.7

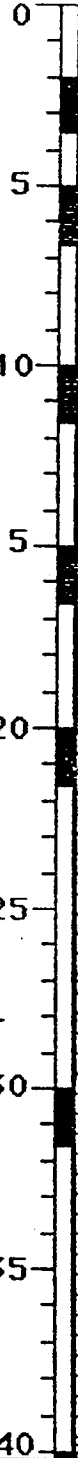
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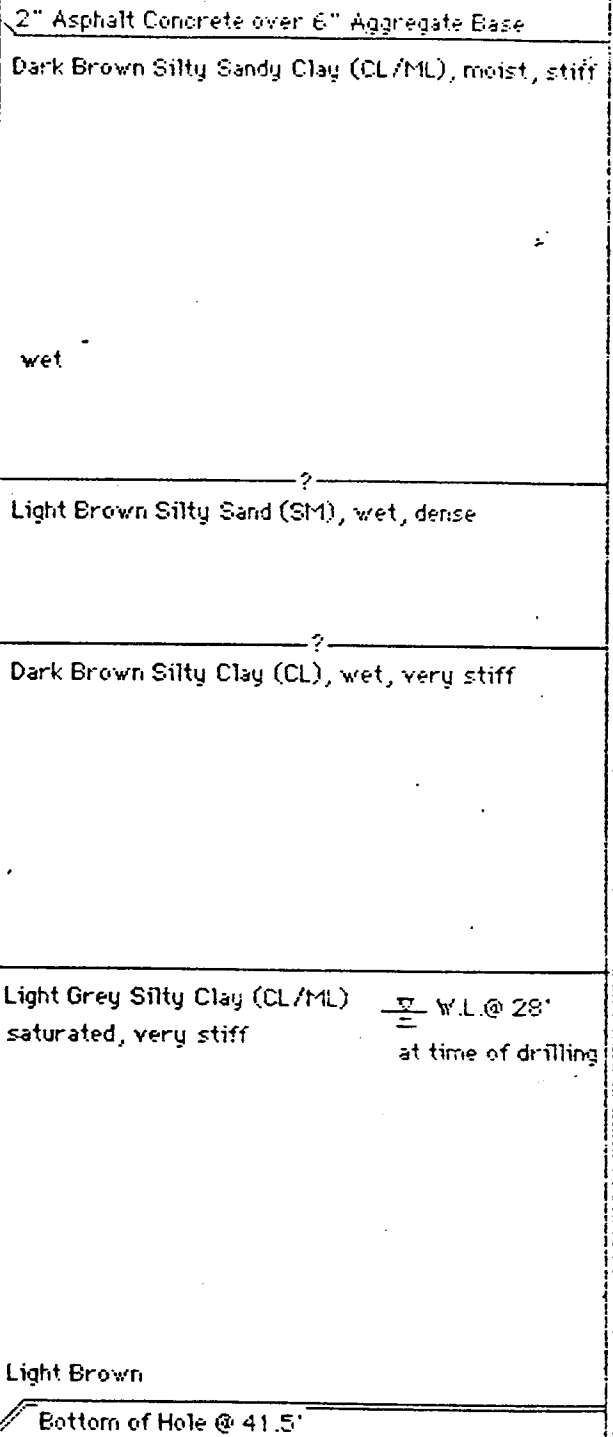
Depth (ft.)  
Sample pnts.




**LOG OF BORING B-3**

Equipment CME-45 w/6" Flight Auger

Elevation 55.0' Date 6-10-88



 **Geo/Resource Consultants, Inc.**  
Geologists, Engineers, Environmental  
Scientists

Job No. 1400-00 Appr: MDC Date 6-21-88

**LOG OF BORING B-3**

**EAST BAY MUNICIPAL UTILITY DISTRICT**  
**SOUTH AREA SERVICE CENTER**  
**SAN LORENZO, CALIFORNIA**

FIGURE  
**5**

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